

Claims

1. An isolated TgAMA-1 polypeptide molecule comprising an antigenic fragment of the polypeptide sequence set forth as amino acids SEQ ID NO:1.
2. A fusion protein comprising the antigenic polypeptide of claim 1.
3. An isolated TgAMA-1 nucleic acid molecule selected from the group consisting of:
 - (a) a fragment of the nucleotide sequence set forth as nucleotides 1-2507 of SEQ ID NO: 2 between 12 and 2506 nucleotides in length, and
 - (b) complements of (a),wherein the fragment encodes the isolated polypeptide of claim 1.
4. An expression vector comprising the isolated nucleic acid sequence of claim 3 operably linked to a promoter.
5. An expression vector comprising an isolated nucleic acid molecule of SEQ ID NO: 2, operably linked to a promoter.
6. A host cell transformed or transfected with the expression vector of any one of claims 4 and 5.
7. The host cell of claim 6, wherein the cell is an insect cell.
8. The host cell of claim 7, where in the insect cell is a High Five™ cell.
9. A transgenic non-human animal comprising the expression vector of any one of claims 4 and 5.
10. The transgenic non-human animal of claim 9, wherein the animal expresses a variable level of TgAMA-1.

11. The transgenic non-human animal of claim 9, wherein the animal expresses an antigenic fragment of SEQ ID NO: 1.

12. The transgenic non-human animal of claim 9, wherein the animal is a mammal.

13. The transgenic non-human animal of claim 9, wherein the animal is a bovine.

14. A vaccine composition comprising the isolated TgAMA-1 polypeptide of claim 1 and an adjuvant.

15. A vaccine composition comprising TgAMA-1 or a functionally active variant thereof, and an adjuvant.

16. The vaccine composition of claims 14 or 15, wherein the adjuvant is selected from the group consisting of: mineral gels, e.g., aluminum hydroxide; surface active substances such as lysolecithin, pluronic polyols; polyanions; peptides; alum, MDP, N-acetyl-muramyl-L-threonyl-D-isoglutamine (thr-MDP), N-acetyl-nor-muramyl-L-alanyl-D-isoglutamine, and N-acetylmuramyl-L-alanyl-D-isoglutaminyl-L-alanine-2-(1'-2'-dipalmitoyl-sn-glycero-3-hydroxyphosphoryloxy)-ethylamine, monophosphoryl lipid A; saponins (QS21; DQS21); QS-7, QS-17, QS-18, and QS-L1; incomplete Freund's adjuvant; complete Freund's adjuvant; montanide; vitamin E, oil emulsions, and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol.

17. A method for immunizing a subject comprising administering to the subject an effective amount for immunizing the subject of a vaccine of any one of claims 14 or 15.

18. The method of claim 17, wherein the subject is a mammal.

19. The method of claim 17, wherein the subject is a human.

20. The method of claim 17, wherein the subject is at risk of infection from *Toxoplasma gondii*.
21. The method of claim 20, wherein the subject is a mammal.
22. The method of claim 20, wherein the subject is a human.
23. A TgAMA-1 binding polypeptide that selectively binds to the isolated TgAMA-1 polypeptide of claim 1.
24. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide is an antibody or antigen-binding fragment of an antibody.
25. The TgAMA-1 binding polypeptide of claim 24, wherein the antibody or antigen-binding fragment specifically binds to a region comprising about 12 or more cysteine residues of the isolated polypeptide of claim 1.
26. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide blocks entry of *Toxoplasma* parasite into a cell.
27. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide is a monoclonal antibody.
28. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide is a humanized monoclonal antibody.
29. An isolated anti-idiotypic antibody that selectively binds to the TgAMA-1 binding polypeptide of claim 23.
30. A method for treating a toxoplasma infection, comprising:
administering to a subject in need of such treatment, an effective amount of a TgAMA-1 binding polypeptide of claim 23 to treat the toxoplasma infection.

31. The method of claim 30, wherein the TgAMA-1 binding polypeptide blocks the entry of Toxoplasma parasite into a cell.

5 32. The method of claim 30, wherein the subject is a mammal.

33. The method of claim 30, wherein the subject is a human.

34. A method for reducing the likelihood of a toxoplasma infection, comprising:
10 administering to a subject in need of such treatment, an effective amount of a binding polypeptide of claim 23 to reduce the likelihood of toxoplasma infection.

35. The method of claim 34, wherein the binding polypeptide blocks the entry of Toxoplasma parasite into a cell.

15 36. The method of claim 34, wherein the subject is a mammal.

37. The method of claim 34, wherein the subject is a human.

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